

### **REMARKS**

This amendment is responsive to the Office Action of September 21, 2007. Reconsideration and allowance of the claims 2-14 are requested.

#### **The Office Action**

Claims 1-9 stand rejected under 35 U.S.C. § 102 as being fully anticipated by Vollmar.

Claim 7 stands rejected under 35 U.S.C. § 101.

#### **The Vollmar Reference**

The Vollmar reference is exemplary of the acknowledged prior art that is discussed in the paragraph which starts at page 1, line 19 and extends to page 2, line 3.

As set forth starting at page 2 and continuing to line 21, the Vollmar technique has various drawbacks, such as smearing. In an iterative reconstruction technique, this smearing builds with every iteration.

As discussed on page 2, line 28 – page 4, line 21, and elsewhere the present application cures these shortcomings of Vollmar.

#### **The Claims Distinguish Patentably Over the References of Record**

**Claim 10** calls for segmenting a second image to define a segmented second image and then forward projecting the segmented second image to form a segmented second image data set. Although Vollmar segments the MR image, e.g., by gray scale, these gray scales are used to select the Markov random field parameter  $\beta$ . There is no suggestion of forward projecting a segmented PET image in Vollmar.

Moreover, claim 10 calls for associating the segmented second image data set with the first image data set to form a segmented first image data set which is reconstructed. By contrast, Vollmar performs an iterative reconstruction of the PET data in accordance with the determined Markov parameter  $\beta$ .

Accordingly, it is submitted that **claim 10 and claims 2-5, 7, 11 and 12 dependent therefrom** are not anticipated by Vollmar and are now in condition for allowance.

**Claim 6** calls for selecting a portion of the first image data set which is to be reconstructed into the first image in such a manner that the first image is calculated exclusively from the portion of the first image data set which is situated in a selected image region. By contrast, Vollmar reconstructs all of the PET image data which results in the above-discussed smearing problem.

Accordingly, it is submitted that **claim 6 and claims 13-14 dependent therefrom** are not anticipated by Vollmar are in condition for allowance.

**Claim 8** calls for segmenting the second image to define a selected region and segmenting the first image data set in accordance with the selected image region to define a segmented first image data set. Vollmar does not define a segmented first image data set.

Claim 8 further calls for reconstructing an image from the segmented first image data set. As discussed on pages 2-4, this alleviates Vollmar's smearing problem discussed on page 2 of the present application.

Accordingly, it is submitted that **claim 8** is not anticipated by Vollmar and is in condition for allowance.

**Claim 9** has been placed in independent form and amended only to incorporate the Examiner's suggested wording changes. Claim 9 calls for the reconstructing step to include selecting a region represented in the second image data set and calculating the image reconstruction from image data in a region represented in the first image data set that corresponds to the selected region represented in the second image data set. Again, Vollmar reconstructs the full PET image data set and not regions selected in accordance with an MR image. Rather, Vollmar selects a larger Markov  $\beta$  parameter when priority information from the MR image has a stronger influence on the reconstruction process (page 1561, column 1, last two lines).

Accordingly, it is submitted that **claim 9** is not anticipated by Vollmar.

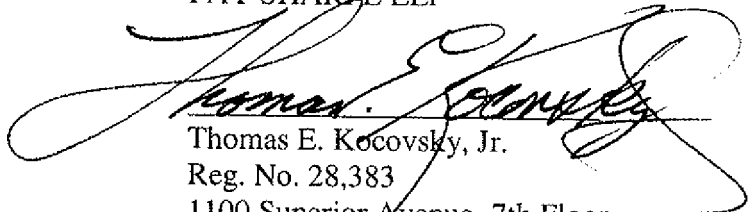
**CONCLUSION**

For the reasons set forth above, it is submitted that all claims distinguish patentably and unobviously over the references of record. An early allowance of all claims is requested.

In the event the Examiner considers personal contact advantageous to the disposition of this case, she is requested to telephone Thomas Kocovsky at (216) 861-5582.

Respectfully submitted,

FAY SHARPE LLP



Thomas E. Kocovsky, Jr.  
Reg. No. 28,383  
1100 Superior Avenue, 7th Floor  
Cleveland, OH 44114-2579  
(216) 861-5582